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SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS

Collaborative e-Business Process Modelling:

Transforming Private EPC to Public BPMN Business Process Models

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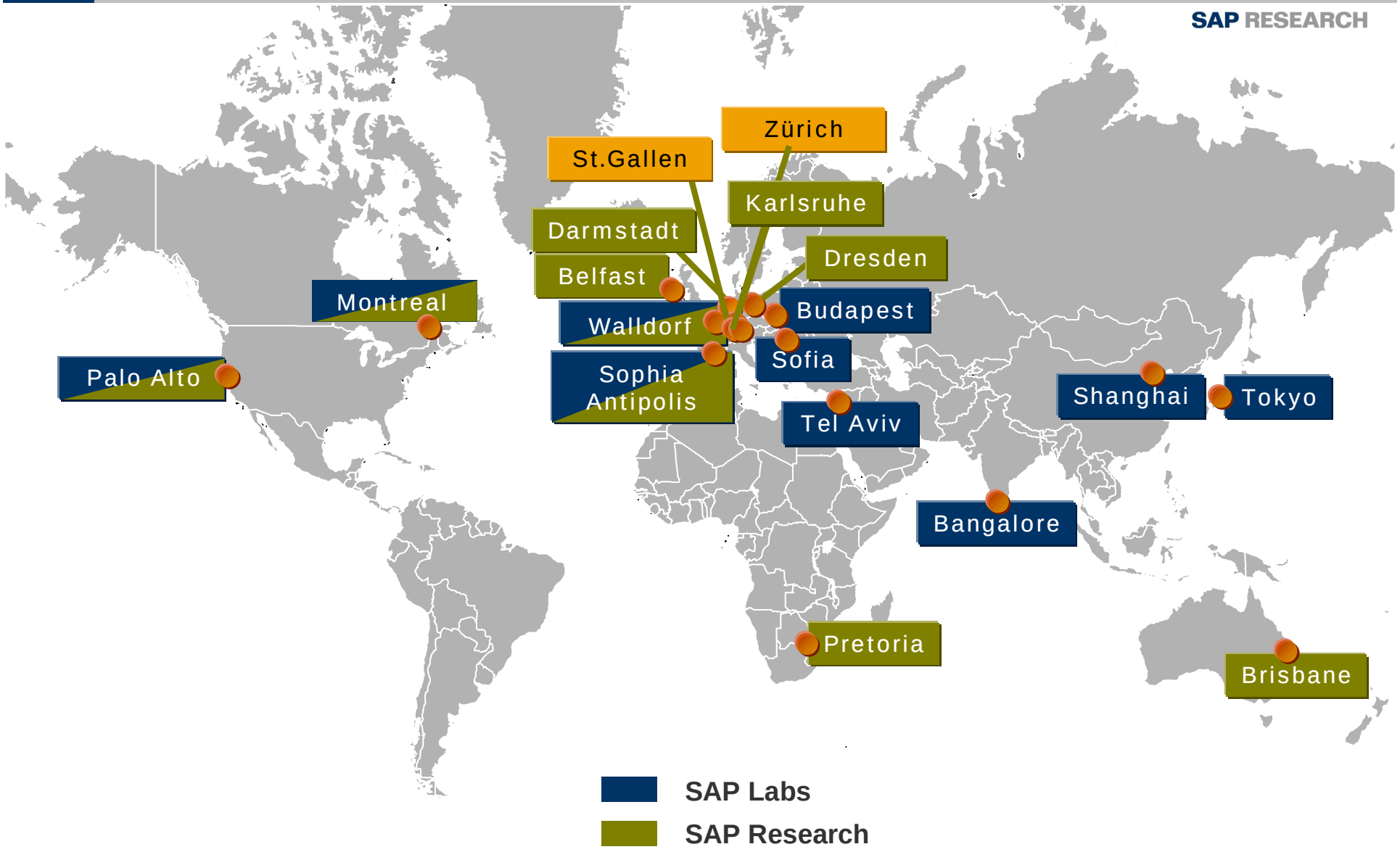
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Executive Summary

Motivation and Modelling Layers

Transformation Concept

Example

Outlook and Conclusion

Executive Summary

Collaborative e-Business Process Modelling

Modelling/ Interoperability Challenges

- Cross-Organizational Business Transactions
- Process Transparency
- Information Hiding
- Highly automated transformation

Modelling Layers and Notations

- Public vs Private Business Process Layer
- Event-Driven Process Chains (EPC)
- Business Process Modelling Notation (BPMN)

Transformation Concept

- Two Step Transformation Concept
- Introduction of an Intermediate Process Layer
- Business Transformation Rules

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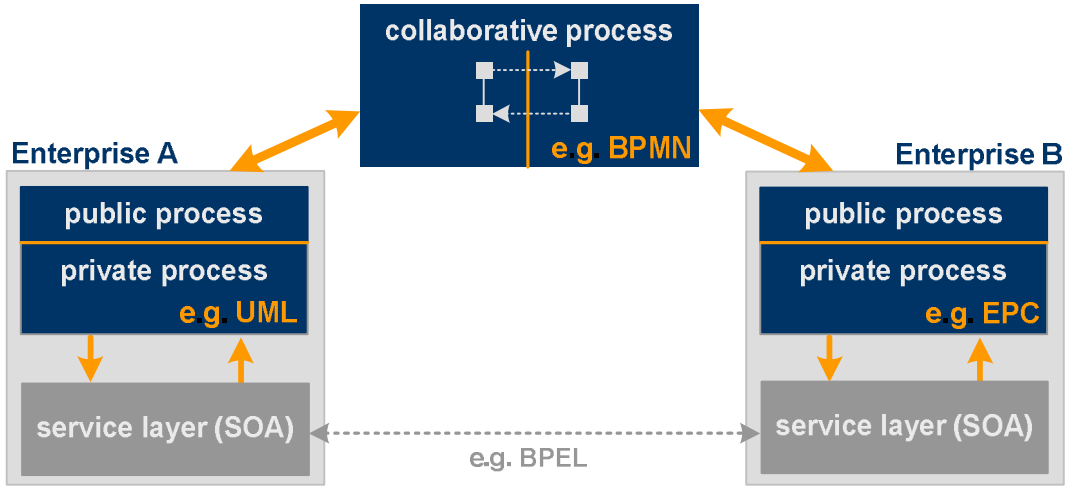
Transformation Concept

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Business Process Modelling Layers

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Cross-organizational processes

Publish processes

Intral-organizational processes

Technical implementation

Comparison Business Process Modelling Languages

UML

- OMG* standard
- Object oriented perspective
- Several diagram types (e.g. Activity /Use Case Diagram)
- Highly formalized

BPMN

- OMG* standard
- IT and business perspective
- One diagram type
- Ease of mapping to executable languages (e.g. BPEL)

EPC

- Proprietary standard
- Business perspective
- One diagram type
- Semi-formal
- Based on Petri Nets

*** Object Management Group**

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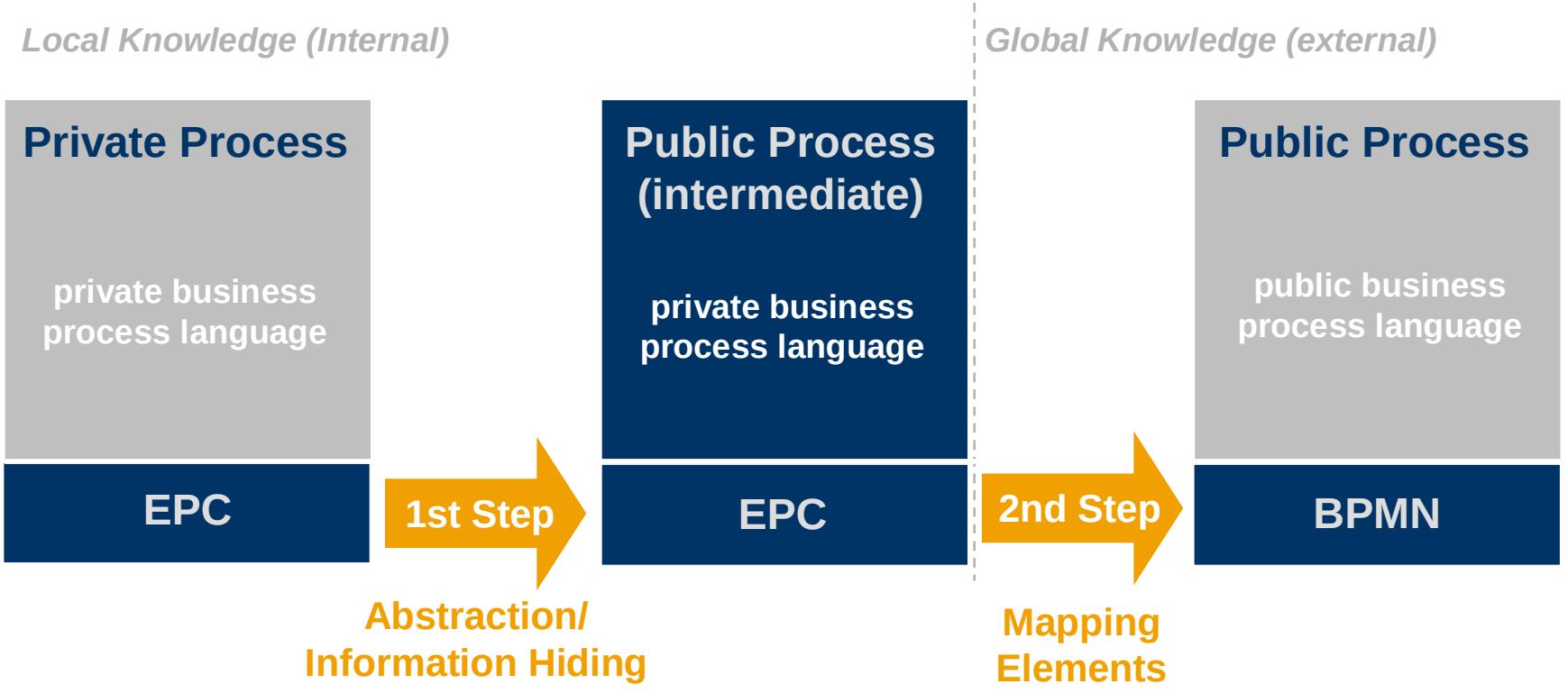
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Two Step Transformation Concept

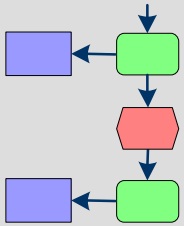
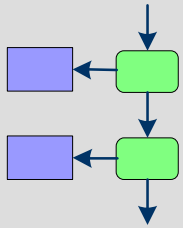
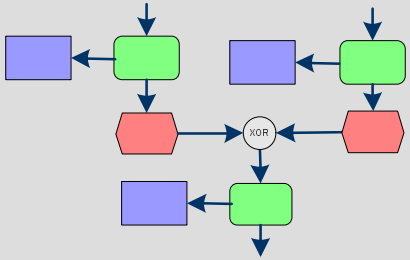
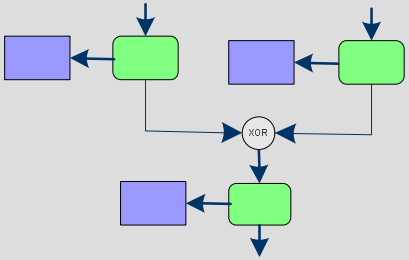
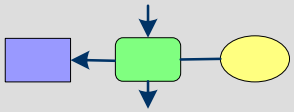
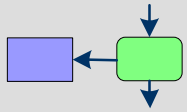


- **Introduction of an Intermediate modelling layer**
- **Abstraction and information hiding is done with the private process modelling language (in this case EPC)**
- **Mapping effort between the private and public modelling language is reduced**

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1st Transformation Step: EPC Abstraction Rules

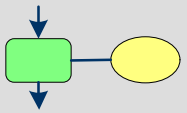
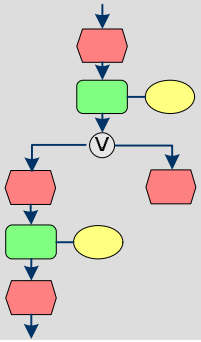
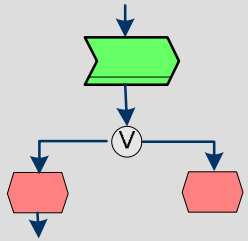
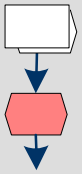
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	Private Process (EPC)	Public Process (EPC) *Intermediate*
Delete all trivial events ■ just „passive“ modelling information elements ■ not relevant on collaborative process layer		
Delete events before connectors ■ process flow is self-explained even without the events		
Delete all organization units ■ every function of a private processes is execute by an organization unit ■ organization units are not visible on public process level		

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1st Transformation Step: EPC Abstraction Rules

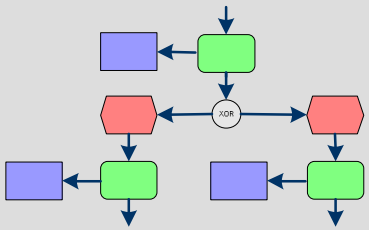
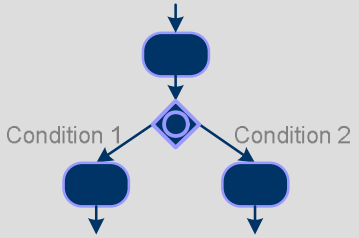
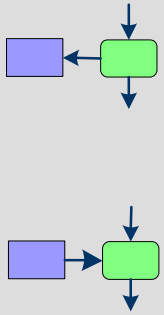
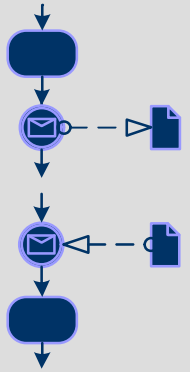
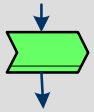
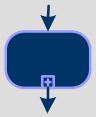
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	Private Process (EPC)	Public Process (EPC) *Intermediate*
Delete all functions not sending or receiving a message ■ collaborative e-Business processes focus on the information exchange		
Abstract from internal processes ■ hiding from sensitive process steps not interacting with external partners ■ abstract process modules provide the process flow to external partners		
Delete all EPC process interfaces ■ this hierachical representation does only exist on private process layer		

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2nd Transformation Step: EPC – BPMN Mapping Rules

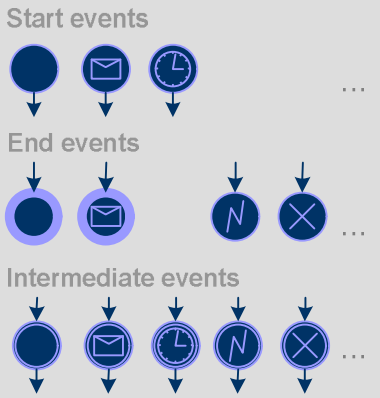
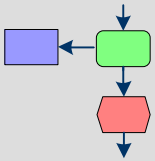
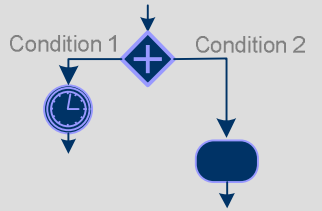
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	Public Process (EPC) *Intermediate*	Public Process (BPMN) *visible to the partners*
Conditions ■ Semantic meaning of the EPC events have to be added to the BPMN conditions		
Sending or Receiving Functions ■ sending and receiving function is mapped ■ in addition a message object is added in the public BPMN model		
Process Abstraction ■ EPC process modules correspond to BPMN sub-functions ■ BPMN sub-functions hides from the internal process flow (black box)		

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2nd Transformation Step: EPC – BPMN Mapping Rules

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	Public Process (EPC) *Intermediate*	Public Process (BPMN) *visible to the partners*
Events ■ BPMN differenciates between three event types (start, intermediate, end) ■ several sub types exists in BPMN ■ uni-directional mapping (EPC → BPMN)		
Semantic Interpretation ■ process flow is modelled in different ways ■ transfering semantic related EPC functions to an adquate BPMN representations (manual work)		

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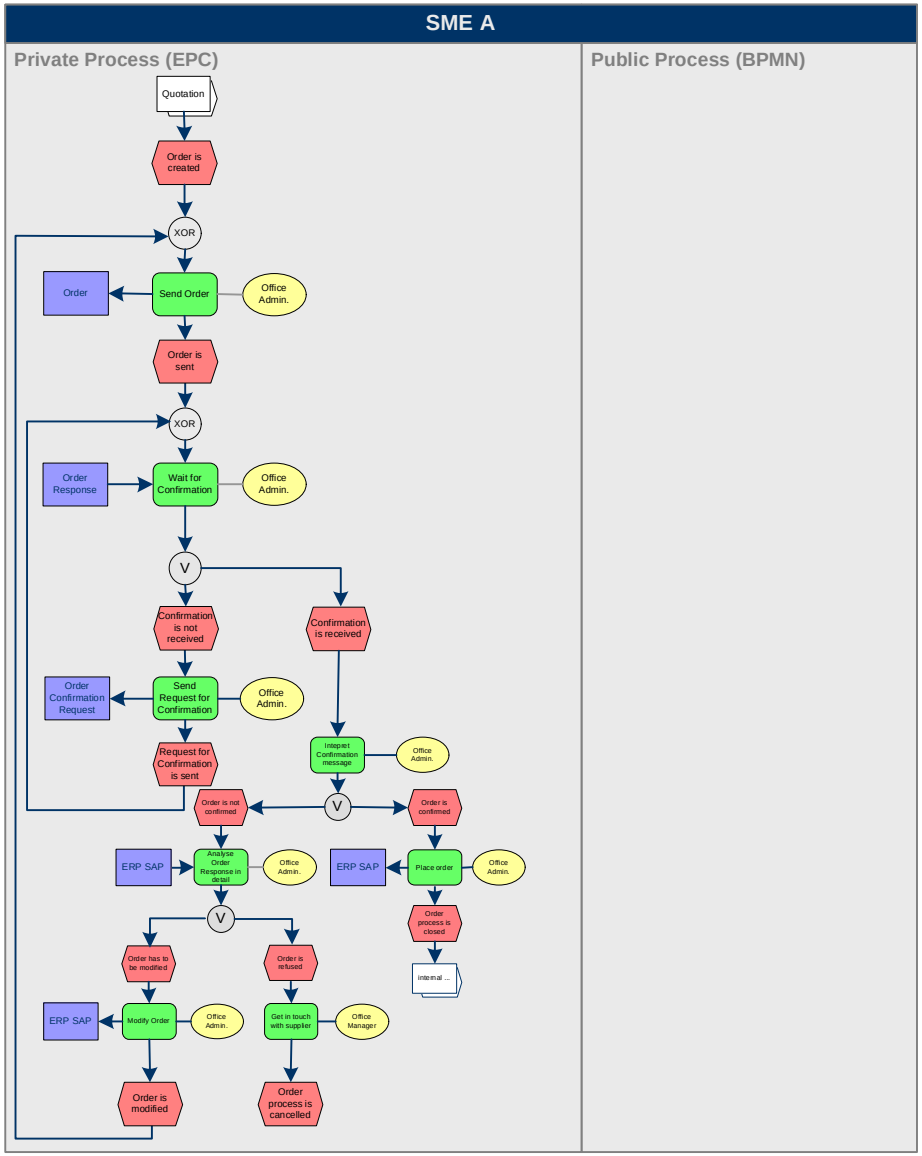
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Example (B2B Order Process)

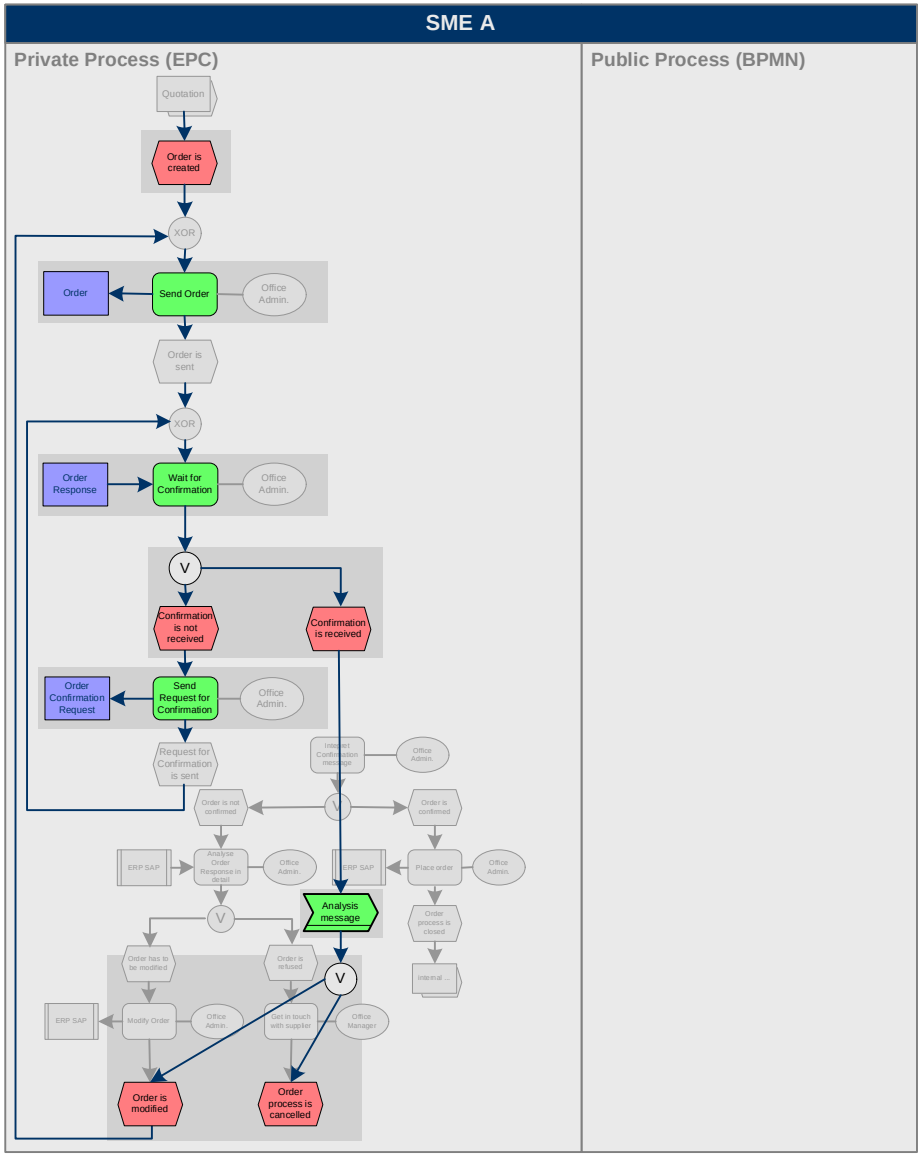


Basis Process

- **B2B Order Process provided by the EU funded GENESIS Project**
- **Private Process (EPC)**

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Example (B2B Order Process)



Basis Process

- B2B Order Process provided by the EU funded GENESIS Project
- Private Process (EPC)

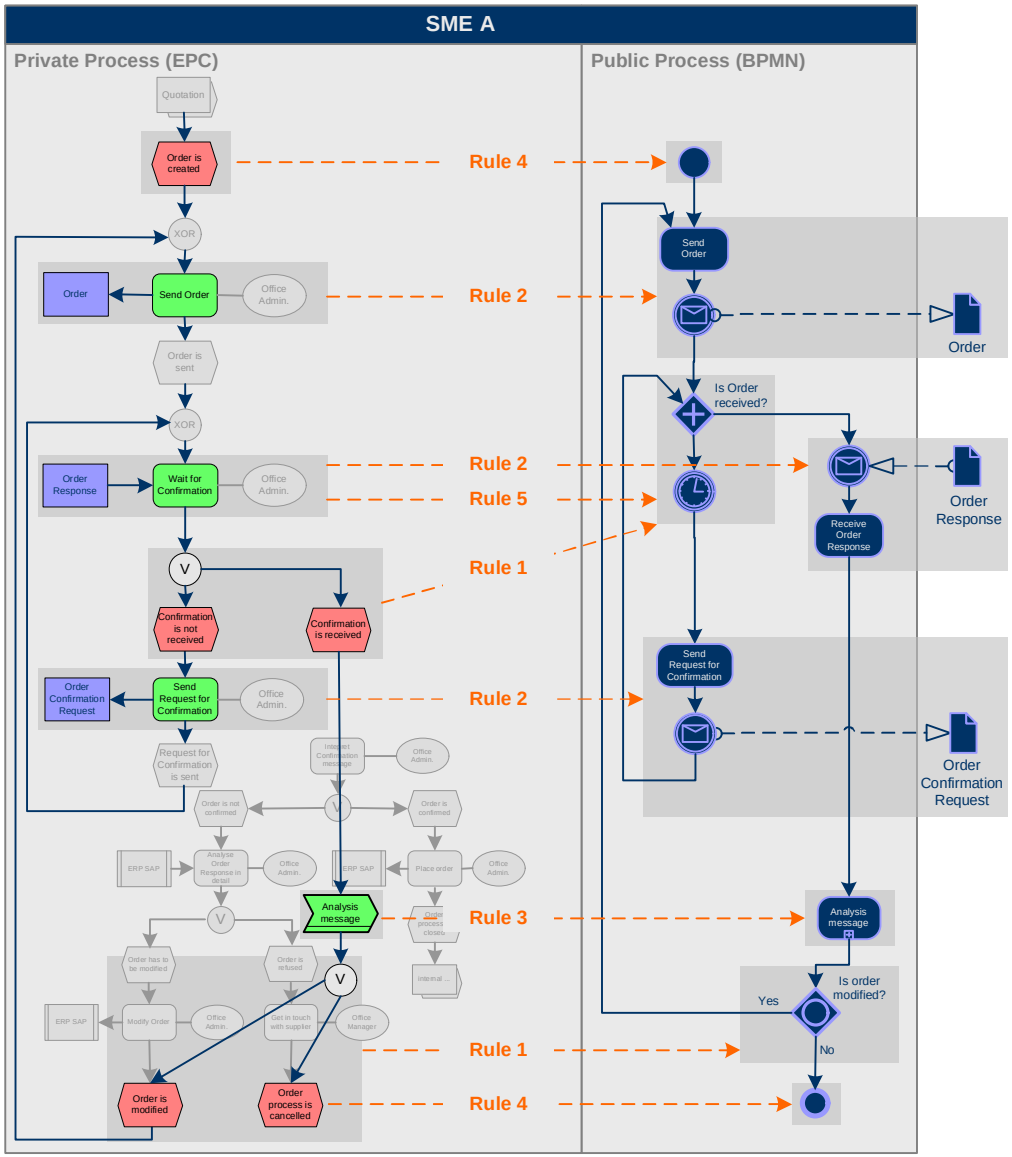
1st Transformation Process

- **Abstraction**
- **Information Hiding**

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Example (B2B Order Process)

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Basis Process

- B2B Order Process provided by the EU funded GENESIS Project
- Private Process (EPC)

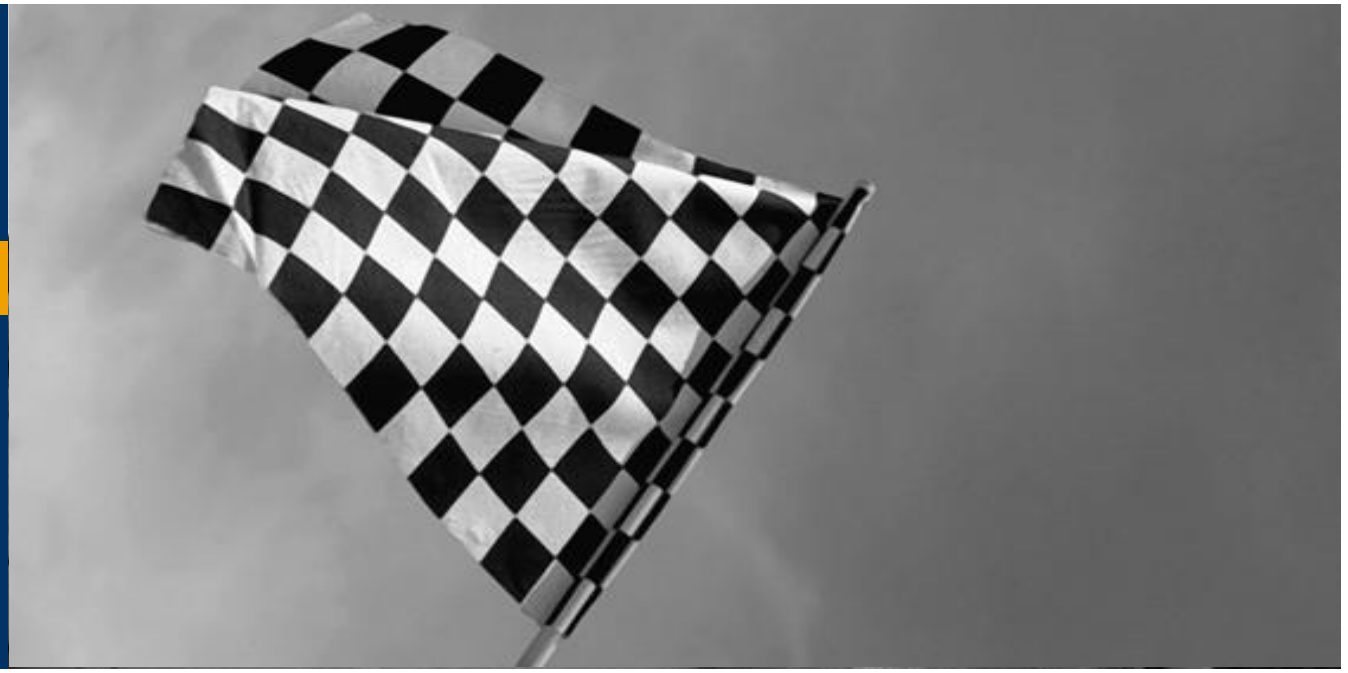
1st Transformation Process

- Abstraction
- Information Hiding

2nd Transformation Process

- **Mapping from EPC elements to BPMN elements**

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Outlook and Future Work

Collaborative e-Business Process Modelling

Semi-automatic Mapping

- Development of an **automatic script** for the two transformation steps
- Covering the identified **semantic transformation problemes**

Business Economics

- Economic analysis to evaluate the **potential impact** regarding the perspective **time** and **source of errors**
- Investigation about **how much transformation work** could be feed from the end-user

Integration into the service and collaborative process layer

- Pilot implementation in the EU-funded **GENESIS project** covering all modelling layers
- **Semi-automatic negotiation** of collaborative business processes

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Summary



- **The tow step transformation concept reduces the mapping complexity between private and public processes taking into account the two challenges transparency and information hiding.**

- **A prototypical realization of the envisioned framework will be implemented in the course of the GENESIS project.**

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